The Ruth H. Hooker Research Library

and Technical Information Center

The NRL InfoNet: Lessons Learned about Networking CD-ROMS to End Users in a Campus Environment

by
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1. INTRODUCTION

The Ruth H. Hooker Research Library and Technical Information Center meets the information needs of Naval Research Laboratory's (NRL) research community, consisting of about 3,500 Federal staff and about 1,200 contractors. Since 1983, end users have been able to search the Library's online catalog both on site and remotely over the campus-wide network, known as NICEnet. However, all other online searching continued to be performed by library reference staff, primarily using DIALOG, STN and DTIC. This situation began to change in 1988 when the Library introduced CD-ROM databases for end-user searching in both its reference area and its Microcomputer Software Support Center[1]. Users responded favorably to the CD-ROM products, enjoying the freedom to explore that comes with performing their own searches.

In June 1990, NRL endorsed a Strategic Plan for Laboratory Networking, which called for uniform access to onsite and external computer databases as part of the development of a fiber optic network. As a follow-up, the Library conducted a user needs analysis later that summer. As a result of interviews with 46 individuals representing a cross section of research interests, the Library learned that users wanted first of all to access information resources from their own computers and workstations. They wanted a system that would:

Provide subject and author access to journal articles as well as books;

Allow users to request materials as part of an online search;

Offer access to multiple databases, both bibliographic and informational;

Store full text files, such as journal articles or handbooks, for downloading;

Provide access to the catalogs of other libraries and to external databases;

Offer electronic document delivery from libraries or information providers.

The NRL Library therefore began to plan for an "information utility" that would serve as a single source for most of a researcher's or administrator's information needs and would, furthermore, be available from every user's desktop[2] . The InfoNet went online in September 1992 providing end users anywhere on the NRL campus with menu driven access to CD-ROMS, the library catalog and other Laboratory databases, and information resources and databases on the Internet.[3], [4]

The InfoNet system consists entirely of industry-standard PCs and off-the-shelf hardware and software and is completely modular and, therefore, readily expandable. The InfoNet makes use of both distributed networking and centralized processing to fully service the information needs of end users.

2. CD-ROMS ON THE INFONET

The InfoNet's primary purpose is to provide the end user with rapid access to huge amounts of information. A large part of that information is stored in various databases which are now published in CD-ROM format. CD-ROMs allow for relatively fast access to huge amounts of information by multiple simultaneous users. The InfoNet currently provides access to databases stored on 20 CD-ROMS, representing 15 different products. With a possible 650 megabytes of data per disk, these 20 CD-ROMs represent a total storage capacity of 14 gigabytes of data. The addition of 14 more drives (planned for Spring 1993) will bring the number of CD-ROM drives on the InfoNet to 35. with a total storage capacity of 22.75 gigabytes. The maximum number of CD-ROM drives possible after adding a second NetWare server will be 77, assuming 21 drives in the primary server and 56 drives in the secondary server. The total data capacity of this system is just over 50 gigabytes of data.

Once the user selects "Information Resources - CD-ROMS" from the InfoNet Main Menu, he or she is presented with a menu of subject areas: Biotechnology, Computer Information, Government Publications/Information, Physical Sciences and Reference Tools. Once the appropriate subject area is selected, the user is offered a submenu listing the CD-ROM resources available. For example, in the area of Physical Sciences, five products are available: ISI Chemistry Citation Index, IEEE/INSPEC, Applied Science and Technology Index, ISI Science Citation Index, DOD Hazardous Material Control and Management. For each product offered, InfoNet provides an online product overview and search tips. This is particularly important since the end user does not have access to any paper search guides and, unlike users in a library setting, he or she will not have a reference person available for consultation.

3. CD-ROM LICENSING IN A CAMPUS NETWORK ENVIRONMENT

The purchase of a CD-ROM database is not a transfer of ownership but a license to use the product within the constraints of the licensing agreement. Unlike a sale in which the seller loses all rights except those covered under copyright, license agreements contain specific terms and conditions which control the usage of the product. The CD-ROM vendor controls all rights granted under the license; rights not mentioned in the license must be negotiated. Should the purchaser not be satisfied with the conditions of the license, and the vendor be unwilling to change the conditions, the purchaser has only one choice left: not to buy the product.

The most common types of licensing are for individual workstations or for individual users. However, another type of licensing arrangement exists, one that is much more suitable for a campus network environment. It is called concurrent licensing and provides a license for an unrestricted but limited number of simultaneous users who belong to a specific group, such as a specific site of an agency.

This form of licensing requires the use of additional software to handle the allocation of CD-ROM access privileges. Metering software functions as a form of overseer, ensuring that simultaneous usage of a product never exceeds the limit imposed by the license. In the case of the InfoNet, Saber Meter is used to ensure licensing compliance. Concurrent licensing is the only form of license deemed acceptable for the InfoNet.

Unfortunately the publishing industry lacks any kind of standard licensing agreement and individual publishers vary greatly in how they license their products. Generally speaking, however, licenses usually restrict the copying of data from the CD-ROM onto other media and usually require that the product be returned or destroyed after either a new disk is sent to the customer, or the subscription is canceled. Moreover, network licensing agreements often control the number of users, workstations, buildings, and/or sites connected to the network and restrict the use of modems for remote network access.

Publishers are only now starting to understand how networks disseminate information or what possibilities exist for controlling information access. For example, the majority of the NRL research community is spread out over approximately 150 low-rise buildings, interconnected by a campus network. The actual number of computer workstations attached to the campus network exceeds the total number of employees. Although over ninety percent of employees are at a single site in Washington, D.C., NRL has facilities and employees in other states. Further, many researchers continue their work at home in the evenings and on week-ends and holidays. As a result, the common conditions applied in CD-ROM licensing agreements are not viable in such an environment. To compensate for this, licensing terms must usually be negotiated with each publisher individually with network access to CD-ROM databases limited usually to no more than five simultaneous

users controlled through metering software. In addition, the InfoNet restricts network access to IP (Internet Protocol) addresses used at NRL. For many vendors, multi-site and dial-in access licensing has yet to be developed and the InfoNet will be breaking new ground as we move into the next phase of implementation.

4. ECONOMICS OF NETWORKING CD-ROMS

Providing networked access to a single CD-ROM product from multiple workstations, either within the library or over a campus network, has obvious advantageous. One surprising advantage is that response time for searching a networked product can be almost twice as fast as for a stand-alone product. Other advantages are the elimination of queuing as multiple users are provided with simultaneous access to a single CD-ROM product and the elimination of workstations dedicated to specific products.

It is difficult to generalize about the cost of specific products. The cost of stand-alone CD-ROM licenses vary widely; an annual fee may be as little as $30 for the U.S. Code of Federal Regulations from the Government Printing Office to a list price of $15,000 for the Science Citation Index with Abstracts from the Institute of Scientific Information. The cost for a concurrent license varies, but it is seldom more than twice the price of a stand-alone version for up to five simultaneous users. However, an occasional vendor will impose fees that are almost five times the cost of a stand-alone version. In addition to the cost of the information products provided on a CD-ROM network, a library needs to be prepared for other ongoing costs. These include hardware and software maintenance costs, the costs for system upgrades, enhancements or replacements, and the cost of staff to administer the system. In the case of the NRL InfoNet, there is a full-time systems administrator in addition to a staff position established to coordinate library selection, implementation and use of electronic resources.

- **INFONET STATISTICS ON CD-ROM USE**

  The metering software used on the InfoNet for limiting the number of concurrent accesses also tracks the number of times each CD-ROM product is used. Statistics are compiled for three separate categories of users: library staff, end users in the library, and end users on the campus-wide NICEnet. Usage statistics are important in deciding whether a product is in enough demand to justify renewal. The most used products at NRL are the INSPEC CD-ROM and Computer Select, both accessed about 200 times a month. About 15% of InfoNet use is during hours when the Library is closed.

- **JUSTIFYING EXPENDITURES FOR NETWORKING CD-ROMS**

  One way to look at CD-ROM use is to assume that were the user not able to search the CD-ROM database remotely, he or she would have needed to visit the library to perform manual research or request a mediated search. When CD-ROMs can be searched remotely, the user is saved the time of a such a visit to the library and the library is saved the cost of performing a search on Dialog or some other commercial system.

  Because the NRL research staff are located throughout the 130-acre campus, a visit to the NRL Library is likely to take a minimum of an hour. The average hourly salary for a researcher plus the average cost to the Library for an online search can be multiplied by the number of CD-ROM searches performed remotely to compute monthly or annual savings. Projecting the number of

searches anticipated for InfoNet in Fiscal Year 1993 and performing this computation shows savings of over 4 times the amount budgeted for the entire InfoNet system.

The estimated savings makes no attempt to put a dollar value on the true benefits to the scientist of having information whenever the need arises. However, over and above the savings computed on the basis of direct costs and time saved, such immediate access to information can be expected to support work flow and improve productivity. Furthermore, it has the potential for eliminating the problems associated with doing without information, a danger whenever information is difficult to obtain. The results of doing without information include: duplicative research, "reinventing the wheel," use of out-dated or erroneous data and failure to follow up on ideas and associations with the potential for pay-off.

- **FUTURE OF CD-ROM PUBLISHING**

CD-ROMs are rapidly becoming the medium of choice for the distribution of medium sized databases. While most CD-ROMs use MS-DOS based search software and are limited to ASCII text, MS-Windows products with pictures, graphs and scientific notation are becoming more prevalent. The multimedia industry appears to be adopting CD-ROM as is format of choice.

The InfoNet, which is currently limited to MS-DOS based CD-ROMS, will need to undergo a transformation to meet the challenges inherent in disseminating information in image format.

- **CONCLUSION**

The NRL Library foresaw the need for an "information utility" that would serve as a single source for most of a researcher's or administrator's information needs and would, furthermore, be available from every user's desktop. Obviously, a busy researcher or administrator is better served if multiple trips to the Library to gather reference and citation information can be eliminated. The InfoNet is an example of such an information utility. Providing the user with access to CD-ROM databases over a campus-wide network, the InfoNet meets many of the information needs of NRL researchers. The system itself is readily expandable and consists entirely of industry-standard components. Most importantly, the InfoNet provides researchers with information where and when they need it the most: at their desktops, 24 hours a day, and on their computing platform of choice.

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